



# MAGAZINE

PRICE TWOPENCE

JANUARY 1959





The *I.C.I. Magazine* is published for the interest of all who work in I.C.I., and its contents are contributed largely by people in I.C.I. It is edited by Sir Richard Keane, Bt., and printed at The Kynoch Press, Birmingham, and is published every month by Imperial Chemical Industries Limited, Imperial Chemical House, Millbank, London, S.W.1. Phone: VICTORIA 4444. The editor is glad to consider articles for publication, and payment will be made for those accepted.

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FRONT COVER: *Pig's Head and Poultry*,  
by M. J. Deacon (Head Office)

## OUR CONTRIBUTORS



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**John Fox** is in Fertilizer Sales Control department at Billingham. After reading Law at Oxford he qualified as a barrister and joined I.C.I. in 1955 in the Secretary's Department of Plant Protection Ltd.



**William Greenlees** is an electrician by trade. He has been employed at Ardeer Factory of Nobel Division for six years and is at present on shift work in the Plain Detonator Mechanisation Plant.



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## The Nature of Capital

By S. P. Chambers (A Deputy Chairman of I.C.I.)

For some people the word capital has acquired an almost emotional significance. Yet the build-up of capital is equally vital for progress in all societies—in dictatorship no less than in democracy. The various ways in which capital is formed in both Britain and Russia are here simply but authoritatively explained.

THERE is so much misunderstanding and so much prejudice about the terms capital, capitalist and capitalism that I make no apology for spending a few minutes to start with in reminding you of the meaning of these words.

Capital is needed for industry in any form of society. This is true whether we have a Conservative Government, a Socialist Government, or even a Communist Government. Capital is just as necessary for a nationalised industry as for private industry: it is just as necessary in Russia as it is in Britain.

If for a moment we forget all the complicated details about money and the mechanism by which capital is formed, and look at the real things behind the money, we can describe the building up and maintenance of capital as the process of postponing the enjoyment of income in the present in the expectation of having income to enjoy in the future. All capital formation is of this nature. But nobody wants to give up £100 this year unless he expects to get something worth more than £100 back at some future date, or unless in the future he will get a steady, if small, income year by year in exchange for the £100 he has given up today.

In primitive conditions a farmer may have to choose each season between putting all his work into the cultivation of the ground which he has already won from the jungle, so as to get the maximum

amount of produce possible from his existing resources, or devoting part of his efforts to this work, and part to the task of clearing further land so that he can get larger crops in later years. If he chooses the second course he will be foregoing the enjoyment of present income in the expectation of having a bigger income in the future. He will be building up capital.

Notwithstanding all the complications, the formation of capital in a highly industrialised society is the same in principle as for our primitive farmer. The more plant, equipment and tools we have the more we can produce with a given labour force. But the making of this extra capital equipment means for the country as a whole the utilisation of labour, materials, and other resources which could have been used to produce more goods for immediate consumption.

The production of goods for export in order to pay for current consumption goods is, of course, just as much the devotion of our current resources to consumption as producing the consumption goods direct.

There is a constant tug of war between the claims of current consumption and those of capital formation upon our existing productive resources. Provided our capital formation is sound, the more of our current resources which we devote to capital formation the lower will be the amount available for our immediate consumption, and the higher will be our

prospective future consumption. In other words, we can forego some part of our current living standard to ensure progressively higher standards for the future.

Those countries which have carried capital formation the furthest have, generally speaking, the highest living standards, although, of course, there are other conditions which affect our living standards. It is no accident that the productivity of the American worker appears to be about double that of the worker in this country; the main reason is not that he works harder or longer—indeed, his working hours are shorter—but that he has more capital equipment at his disposal than the corresponding worker in Britain.

There are, of course, many kinds of capital and many ways in which current income can be given up in order to get future income. There are several quite distinct classes of people who save out of current income, which is the first thing that must be done if there is to be any capital formation, and several classes of people who use the resources so set free in order to build up capital.

## Savers All

The savers may be individuals, institutions (such as building societies, pension funds or life assurance companies) or industrial companies or Governments. The saving by the individual is obviously the simplest to see and understand. The effect of individual savings upon the utilisation of the national resources may appear to be indirect and insignificant, but this is not so. For example, savings lent by a number of individuals to a local authority enable that local authority to put in amenities, whether by way of improved local transport, roads, parks, libraries, etc. In using these savings in this way the local authority uses the money it gets to pay people to build up this capital equipment who could otherwise be producing consumption goods. The workers so employed are consuming supplies of food, drink, etc., but not in fact producing immediate consumption goods to the same extent.

## Where the Money Goes

If the savings in question were lent to a manufacturing company the money could be devoted to putting up a factory which in due course might add to our supply of consumption goods (from ice cream and nylon stockings to television sets). If these savings are lent to the Government by the purchase of National Savings Certificates, Premium Bonds, or by



deposits in Savings Banks, the money can be used to erect schools, hospitals, etc.

The savings by individuals still constitute one of the largest blocks of savings for the country as a whole. The savings of pension funds, life assurance companies and similar financial institutions are, for the most part, particular forms of individual savings. Savings by companies are about equal to individual savings, and savings by Governments, including local authorities, are usually smaller. Out of a national income of about £18,000 million in 1957, about £4,000 million was saved. Of this about £1,500 million represents personal savings, £1,700 million the savings of companies, and just under £1,000 million the saving of central Government, local authorities and nationalised undertakings.

In Britain today there is the complication that some of the industry of the country, notably transport, coal-mining and air transport, and some sections of the steel industry, are owned by the Government, so that the savings of these sections of industry count as Government savings.

### *Capital Investors*

If we turn to the other side of the picture we find that the main groups of capital investors (that is to say the groups that use the savings in order to form capital of one kind or another) can also be described in the same general classes. There are individuals who are either in business on their own (such as farmers or shopkeepers) or in partnership who use savings, whether their own savings or those of other people, for capital purposes in their own businesses. There are also companies in the private sector of industry who use savings to put up factories and offices or to build ships and other forms of transport. Finally there are of course Government bodies which build hospitals, schools and roads, and also incur a good deal of capital expenditure in the nationalised industries.

### *Tug of War*

The distribution of savings between these three main groups of spenders is important. At one time most savings were invested by individuals or companies in the private sector of industry. Today the Government share of capital expenditure is very high. In so far as savings go to the Government they are, of course, not available for individuals or companies. If we ignore the money mechanism this is just the

same as saying that resources which are used to build hospitals, schools and roads are not available to put up factories or offices for the private sector of industry.

There is thus a second tug of war, and that is between different users of capital, and this tug of war goes on in Russia as well as in Britain or the United States of America.

### *Use of Savings*

The form in which savings are made affects the use of those savings. It has been explained above that the savings of institutions such as building societies, pension funds and life assurance companies are in fact a particular form of savings by individuals. A man steadily saves up the whole cost of his home by making monthly payments to a building society; or he may save by paying premiums on a life insurance policy in order that he or his widow can have a sum later on; or he may be a member of a pension fund and so forego current spending power in order to have income to spend as a pension in the future. All these forms of savings are available for capital formation of one kind or another. Savings channelled through pension funds and life insurance policies are quite specially favoured by our taxation rules, which in this matter are rather arbitrary and perhaps in the long run rather undesirable. These institutions choose the forms of capital in which the savings are invested; sometimes the form of capital formation is determined quite specifically by the nature of the institution, e.g. house-building in the case of a building society. That is a matter to which we shall return in a moment.

### *Profits after Tax*

The savings of companies are reasonably simple to understand. In so far as a company makes more profits than it distributes in taxation to the Government or dividends to the shareholders, it has something to spare which can be used for capital purposes. Again the company—or rather its board of directors—chooses the form of capital in which to invest the savings. Companies can, of course, get savings from other people by having issues of shares or debentures, and both forms of savings are important to the average company, although some companies rely more on one form than on another.

When we come to savings by Governments, however, the position is different. Apart from the profits of nationalised industries (and this in Britain at the

present time is a somewhat academic exclusion, because they have made little or no profit), Government savings can come about by the excess of the taxes which it has collected over Government expenditure on current goods and services. Individual savings lent to the Government are on a different footing from Government savings out of taxation. If a Government was strong enough there would be hardly any limit to the extent to which it could put up taxes and keep down its expenditures on current goods and services in order to increase the amount of capital formation.

### *Totalitarian Unlimited*

In a democratic society there are, in practice, very definite limits to the extent to which the electorate will allow a Government to collect more taxes than it needs for its current purposes. This is not so, however, with a powerful totalitarian Government. There is no doubt whatever that in countries behind the Iron Curtain standards of living have been kept down in order to make available resources for Government capital expenditure in a way which is utterly repugnant in a free society. In Russia and in these other totalitarian countries the average worker produces far more income than he is allowed to enjoy. Rigid wage control and the channelling of resources to the State through high state-controlled prices, taxation and compulsory savings do all that is needed. The balance of resources so kept from current consumption goes not only in building up very large military installations, but also to the formation of industrial capital in the form of factories in every type of industry. The rate of capital formation in Russia is exceedingly high, and is maintained by a system of suppressing the natural desires of people who would prefer to enjoy more of the fruits of their labours, a policy which we could not contemplate in Britain.

### *Coal Board Survey*

The methods employed have been examined by various missions, including one sent by the National Coal Board about three years ago and which stayed several months. The wages of the lowest-paid workers are such that in many cases a man and his wife both have to work long hours for the barest means of subsistence. Whatever the true value of their output, what their wages will buy is determined by the prices which they must pay in the State shops. More skilled workers are much better paid. Higher

up the scale the mine or factory manager is probably better off than his opposite number in British industry. The great drive towards technical education and towards scientific degrees springs from the men and women concerned because they know how much their own standards of living will depend on their personal qualifications for skilled work or managerial control in industry. The great building up of physical capital is thus being matched by a corresponding building up of personal capital in the growing army of skilled workers and scientists.

### *Red Exports*

This state of affairs in Russia will mean that as a competitor in selling goods in overseas markets in the future Russia is going to become extremely powerful. Indeed, it has been estimated quite soberly in the United States that within a decade or so the productive capacity of Russia will exceed that of the United States. At that stage it will be possible in Russia to have much higher standards of living.

In the meantime, at home, having regard to the need to encourage savings so that capital can be formed on a scale which will enable our future standards of living to go on rising, we must consider most carefully the climate which will encourage such savings and will also encourage the productive investment of those savings in industry. The climate must be such that though people are free to save or to consume, they choose to save enough to keep our economy healthy and progressive.

### *Present v. Future*

If the climate is wrong, and if we go on devoting to current consumption resources which should be devoted to capital formation, our economy will become stagnant, and our standards of living will fall behind those in other countries. The position is rather worse than it may appear from a bald statement of this kind because even for our present standards we require to export a large part of our production to pay for our food and necessary raw materials. Failure, therefore, to keep up the rate of productive investment is likely to lead to a fall in our competitive power and an actual fall in our standards of living. In several Asiatic countries the income is so low that savings are almost impossible, and without savings incomes have little hope of rising in the future; and there is thus a vicious circle which cannot easily be

(Continued on page 13)



# HARRY WHITTLE

By Denzil Batchelor



THE beginning is the most fascinating thing about any story of an athletics champion. Most endings are the same—Fanny Blankers Koen wins four gold medals at Wembley in 1948 and Zatopek three at Helsinki; both pale into insignificance and total failure at their next Olympic appearance. Now red-headed, bespectacled Harry Whittle never won an Olympic event, but he was undefeated for seven years in the national championships in his special field—which he won for the first time, in his fourth race at the distance, at twenty-five, an age when many short-distance men might suppose they ought to be considering retirement. What a beginning!

Whittle may be claimed as the greatest 440-yard low hurdler this country has ever produced; he also won the A.A.A. long jump twice and the decathlon once. In addition, he won the 220 yards low hurdles in 1953 on his only appearance. You could say without fear of being contradicted that he has been our most versatile athlete since World War II. The decathlon, I think, is part of the proof: in it you have to excel at the 100 metres, long jump, putting the weight, high jump, 400 metres, 110 metres high hurdles, discus, pole vault, javelin and 1500 metres.

Now this versatility is especially interesting because, even as early as the immediate post-war period, when times look almost antediluvian to modern eyes, the athletics world was virtually a preserve of specialists. To be a star you dedicated yourself to the steeplechase or the high jump (or whatever it was) in your early teens. You kept on being coached until twenty, and then hoped for success. If you were a steeplechaser or a high jumper you probably didn't know there was such a thing as a mile race or a sprint on the programme.

But Whittle innocently flouted all the rules. He never knew there was such a thing as the low hurdles until he was nearer thirty than twenty. He was educated at Bolton School, where in those days the sports took place on two days stolen from the cricket season, little time at all being

wasted on such a superfluous frill as training. He duly became *victor ludorum*, winning the half-mile, mile, both jumps and the javelin. Then he went to Manchester University during the early years of the war and won his maroon (the equivalent of a blue) for association football and athletics—without benefit of sprinting or hurdling. Once at Loughborough he ran in a 440-yard hurdle race and won it—in over a minute. It was an event of no importance but worth recording because it was the first time a national champion competed in the event chosen for him by destiny—and failed to notice it had happened.

Service in Italy with R.E.M.E. followed, then in 1947 Captain Whittle was posted to England and on the advice of a friend, Captain Bill Hutchings, joined the Reading Athletic Club and set about doing a little training.

It was, of course, far too little and far too late, but it pleased him and seemed likely to do harm to nobody. That turned out to be a miscalculation. It did all the harm in the world to other aspirants with championship claims: for having won two hurdles races Whittle had the temerity—in Bolton they would have said *sauce*—to enter for the A.A.A. championships.

It is at this point that Whittle's story enters the realm of pure fantasy, fit for Walter Mitty. He found himself in the finals, both of the long jump and of the 440 yards hurdles. Fair enough. What, however, was a little bit daunting was the fact that a glance at the programme proved that the finals of these two events were due to start at precisely the same moment.

If, in a work of fiction, I made a hero do what Whittle in fact did, I would (quite rightly) be howled down by the critics for making my hero too heroic by half. For Whittle won the nation's championship with his second leap in the long jump, then sprinted across to the final of the hurdles—and won that too. He had half-dug starting holes, which because of the long jump he had not had time to finish; but that was not a matter of much importance, as he had no very precise idea what they were for or why he was digging them.

Well, there were other targets ahead. There was Lord Burghley's record for the event—53·8 seconds. Whittle beat



Whittle in action. Above: At practice over hurdles in 1952, the year in which he captained the British team taking part in the Olympic Games at Helsinki. Below: Winning the long jump at the White City in 1953.



that with 53·4 in 1949. Four years later he beat his own record with 52·7 seconds at the age of thirty-one. Then having won the 440 yards hurdles from 1947 (the year in which he first seriously attempted the event anywhere) to 1953 inclusive, he retired from athletics. Not before—let me remind you again—he had won national titles in three other fields: the 220 yards low hurdles, long jump and the decathlon; and not before he had captained the international athletic team from 1950 to 1953, including the Olympic Games at Helsinki, finishing fifth in the 400 metres hurdles.

And what of the present? Harry Whittle has, of course, by now joined the chairborne brigade, though still playing hockey and cricket regularly. He is a design engineer with Dyestuffs Division, on detachment at the moment to Central Work Study Department in Head Office.



# People and events . . .

## Mr. P. C. Allen appointed C.I.L. President

**M**r. P. C. Allen, I.C.I. Fibres Group Director since 1955, has been elected president of I.C.I.'s Canadian subsidiary, Canadian Industries Ltd. He succeeds **Mr. H. Greville Smith**, who resigned on 31st December. (An appreciation of Mr. Smith's work by **Sir Alexander Fleck** appears on page 12.) Mr. Allen's appointment is expected to be for three or four years, and he is retaining his seat on the I.C.I. Board. For the time being **Mr. C. M. Wright** (Development Director) is taking on the duties of Fibres Group Director.

Mr. Allen is no stranger to Canada. He estimates that he has been back to Canada no fewer than ten times since his first visit there in 1933, when, as a member of Alkali Division's Techno-Commercial Department, he went on



Mr. P. C. Allen

the Alkali Commission to Canada. Two of the articles he has contributed to the *Magazine* have been about Canada. One on Montreal appeared in 1955, and the other, about the famous Fort Henry Guard, in September last year. Mr. Allen's great interest in railways is well known, and he must be one of the very few people in I.C.I. who have made the four and a half day

journey from Montreal to Vancouver by rail.

Mr. Allen and his wife flew off from London Airport on New Year's Eve by B.O.A.C. Britannia bound for Montreal. Earlier in the month he made a whirlwind tour of all I.C.I. Divisions having links with C.I.L. Although his headquarters will be in Montreal, Mr. Allen will not by any means be relinquishing his interest in I.C.I. affairs. He expects to come back three or four times a year, and for a start will almost certainly be back for the I.C.I. Annual General Meeting next May.

### New Hope for Lepers

**D**ETAILS of a new I.C.I. drug—'Etisul'—which may revolutionise the treatment of leprosy were announced at the recent International Congress on Leprosy in Tokyo. The news was given by Dr. T. F. Davey, head of the Nigerian Leprosy Service Research Unit at Uzuakoli, Eastern Nigeria, who has been carrying out trials with the drug since September 1957. On the same day in London **Dr. W. A. Sexton**, Research Director of Pharmaceuticals Division, was interviewed about the drug on Radio Newsreel, and a short film showing some of the research going on into 'Etisul' at Alderley Park laboratories was included in Mr. Cliff Michelmore's "Tonight" programme on BBC television.

Estimates indicate that there are still between 3 and 5 million people in the world suffering from leprosy, 750,000 of them in British-administered territories. Up to now it has been necessary for a leper to be shut away from his family for two years or more. Results so far in Nigeria suggest that with 'Etisul' this may be considerably shortened. The shorter the time a patient has to be isolated the more readily he will come forward for treatment, and the earlier he comes forward the less chance there is of him having infected other people. So 'Etisul' may well hasten the day when leprosy will disappear altogether. 'Etisul' acts throughout the body after being rubbed on the skin and is in fact the only example in modern medicine of a drug acting in this way. From the patient's point of view this avoids the pain of an injection and at the same time satisfies his desire to put something on the affected spot.

'Etisul' is the result of seven years' research by Pharmaceuticals Division. Over 400 different chemical compounds were made and tested in the search for a suitable drug. As a result of Dr. Davey's very promising trials the drug has been put into commercial production and is expected to be on the market by the time this *Magazine* appears.

### Sir Ewart says Farewell

**F**IVE well-known I.C.I. figures appeared at Central Council for the last time in November. They were **Mr. J. D. Maughan**, works manager at Winnington, **Mr. G. Haddock**, managing director of Leathercloth Division, and **Mr. E. R. Lightfoot**, deputy head of Pensions Department, who all retired at the end of November, **Mr. C. L. Moore**, works manager of Paints

Division's Smethwick Works, who retired last month, and **Sir Ewart Smith**, one of I.C.I.'s Deputy Chairmen, who is retiring in March.

At the invitation of the Chairman, Sir Ewart Smith made a farewell speech to Central Council. These are some of the things he had to say. On the subject of young people he believed that the opportunities open today were even greater than they were when he started in a junior position at Billingham thirty-five years ago. He had seen I.C.I. grow not only in size and efficiency, but in the humanity of its approach to people and problems of every kind; and he considered it to be the best company in the country—bar none. But that did not mean it was perfect, and just because of its success he wished to sound a note of challenge and a warning against complacency. It was not uncommon for an organisation, just like many a successful person, to feel that there was no longer need for effort. He was not suggesting that this was at present true of I.C.I., but he believed the best way to avoid a danger was to visualise it and plan to deal with it before it was met.

### Voice from the Past

*"We have no reason to be dissatisfied with the year as far as it has gone. When I say that we have no reason to be dissatisfied, I do not mean to say that I am satisfied, because I shall never be satisfied with anything in I.C.I. as long as I am Chairman. I think it is the role of the Chairman to have his soul filled with a divine discontent at the disparity between the idea which he sees in front of him and the limitations of human capacity, including his own. It is in that direction that he is really fulfilling his most useful function. . . ."*—From the first Lord Melchett's address to Central Council, June 1930.

Sir Ewart drew attention to an unpleasant fact brought out in our recent annual and half-yearly reports: both sales and profits were not rising in proportion to capital. He believed we should regard capital with more respect if we thought of it in terms of human

effort. "It is difficult," said Sir Ewart, "for the ordinary man to visualise the meaning of a million pounds of capital; I like instead to think of this sum as representing 1400 people working for one year. So if it is spent on a plant with a life of twenty years it is equivalent to at least seventy extra men working on the unit throughout that period." Considered in this way, it was clear that spending capital unwisely, or not using it efficiently, meant wasting the effort of the "potted" manpower represented by that capital and was doing a real disservice both to them and to the community at large.

\* \* \*

Some might say to themselves: "But these things are not *my* responsibility." Of course top management must give the lead and carry the chief load of responsibility, but these matters were the concern of all, for each individual could have some influence on the results for good or ill. Everyone had a measure of managerial responsibility, even if only as the "manager" of his own job. Our present freedoms and improved standards of life were largely bequeathed to us by those who had gone before. We must remember that what we did now would similarly affect the material well-being and happiness of those who came after us.

We must not forget that progress automatically means change, and change cannot always be left to the other fellow; it must often affect ourselves. But if we understood the reasons for change, it would be far less hurtful than the sort of change that could be forced on those who thought that, for them, time and external events could be made to stand still. Sir Ewart believed in boldly seeking change as the price of progress and bending it to our objectives. If we had clear and worth-while aims, and if as a team we sought them with determination and energy, the future success of I.C.I. would far outshine its past achievements.

### Ski Fever

**T**HE theory of ski-ing learned the hard way on coconut matting stretched

## NEWS IN BRIEF

**Aussie Food Campaign.** Kynoch Works canteen was visited recently by two young ambassadors from Down Under out to "sell" Australian food and wines to the people of Britain. Correct answers in an Australian geographical quiz won Kynoch employees parcels of Australian produce, while members of the audience who bravely volunteered to sing were rewarded with a bottle of wine.

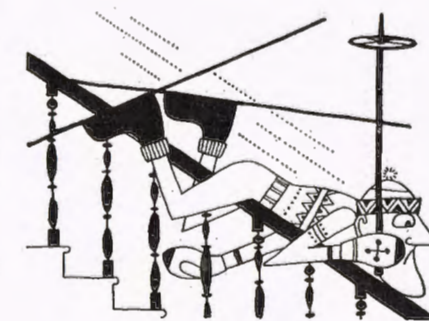
**Stocks and Shares Talk.** As a result of a suggestion made at Stowmarket Works Council, a member of the London Stock Exchange was recently invited to the factory to give a talk on the whys and wherefores of the Stock Exchange.

**Ardeer Photographers.** Out of the 21 societies, including leading bodies in Edinburgh and Glasgow, which sent in prints for inclusion in the "Scottish Portfolio"—the pick of the year's Scottish photography—Ardeer Recreation Club's Photographic Section was placed eighth.

**Oscar for Alkathene "Roses."** When the Australian plastics industry staged its annual exhibition and competition for the F. H. Edwards Award—the industry's "Oscar"—roses made from 'Alkathene' produced at I.C.I.A.N.Z. plastics factory walked off with the trophy. Not only did the roses look like the real thing, but they were scented with a perfume claimed to last for at least six months.

**Tooth Trouble?** The last of the ancillary services to be provided by Wilton Works Medical Centre came into operation recently with the opening of the dental department by Mr. R. E. Newell, Managing Director. He became the first patient and was attended by the newly appointed dentist, Mr. B. R. Stephen.

over a flight of stairs will be put into practice in a few days' time by a coach-



load of enthusiasts from Nobel Division. The first of a series of day trips



## PEOPLE

London's rush-hour transport problems are to be tackled by a new body—the London Travel Committee—set up by Mr. Harold Watkinson, the Minister of Transport. **Mr. L. G. Burleigh**, I.C.I. Transport Adviser, has been appointed one of the members.

**Mr. Fred Bradley** of Cassel Works, Billingham, retired recently after nearly 48 years' service. Altogether his family have a record of 153 years' service. His father completed 48 years, his brother William, who retired two years ago, completed 47 years, and his daughter Mary has been working in Plastics Works staff canteen for the past ten years.

At Convocation at Oxford University on 22nd November the Vice-Chancellor conferred the honorary degree of D.Sc. on **Dr. Ronald Holroyd**, a deputy chairman of I.C.I.

**Mr. T. Lacey**, who retired from Gaskell-Marsh Works (General Chemicals Division) in 1949, retired again recently—after sixty years as a church organist. Now 75, he started to play as a boy at the Milton Church Sunday School, Widnes.

Two Lime Division employees, **Mr. R. Bannister** and **Mr. L. E. Greenwood**, belong to the Buxton Spa Quartet which won the Belshaw Trophy for the best male voice quartet in the 1958 Blackpool Musical Festival.

Poems by **Mr. Thomas Fassam** (Central Work Study Dept.) were included in "Poetry of Two Wars," read by John Laurie and David Spenser at Foyle's Bookshop on the fortieth anniversary of Armistice Day. The programme was presided over by Paul Dehn.

For now the Judge has come, a play about the trial in 1586 of a York housewife for harbouring a Catholic priest, had its first performance in November at Middlesbrough Little Theatre. It is the work of Mrs. Kitty Blott, wife of **Mr. Ivor Blott** (Wilton Works), who was among the cast. Two other Wilton employees took part. **Mr. Peter Wells** played the priest, and Miss Peggy Tumbler helped with the costumes.

to the snow slopes of Crianlarich has been organised by the new Nobel (Glasgow) Club ski section for 11th January.

The success of this section, which started up last autumn, has surprised even **Mr. J. A. R. Silver** (Division Staff Department), whose idea it was. Around seventy people entered their names for dry ski classes, so instead of the one class originally planned, three

sessions a week had to be arranged. The classes were under the charge of **Mr. Harry Martin**, a well-known ski instructor in the west of Scotland, and two Norwegian experts.

Not content with ski drill on a flat floor, would-be skiers were introduced to something approximating to the movement on the snow slopes by attempting runs on coconut matting stretched over a short flight of stairs. "Not as easy as it looks" was the comment from those brave enough to try.

## Windsor Castle Model

**R**APPERSWILL Castle on the edge of Lake Zürich in Switzerland houses a unique museum of some twenty model castles. The museum's newest acquisition is a seven-foot-long scale model of Windsor Castle, believed to be the first complete model of the Castle ever made. It is the work of **Mr. Michael Lacey**, who works in Central Publicity Department, and was commissioned by the British Council on behalf of the British Community in Zürich.

Working in his spare time in the evenings and at week-ends, the model took him seven months to build. Before he could begin work, however, he had to spend many hours browsing through old books and documents in Windsor Castle library and looking through hundreds of aerial photographs, for surprisingly no proper plan of the whole of Windsor Castle exists.

The model itself is made mainly of plywood, Bristol board and plaster, and is painted, **Mr. Lacey** tells us, entirely in 'Du-lite.' It was formally presented to Rapperswill Museum by Sir William Pollock, H.M. Ambassador to Switzerland, on 22nd November.

**Mr. Lacey** has also made models of the Shakespearean Theatre at Stratford, Ontario, for the British Council and the Canadian Government.

## Veteran Loco Named

**A**FTER almost 30 years of service a special loco for pushing coke cars at Billingham has been rebuilt—and it has been named after **Mr. Tommy Brown**, a maintenance foreman who has been in the Coke Ovens section of

Gas and Power Works since the first ovens were brought into use in 1929. The loco has been used since 1929 for moving cars filled with red-hot coke from the ovens to the quencher, and it is estimated that over the years it has moved 10,000,000 tons of coke.

This loco was the only one in the whole factory without an official name. So when it was being rebuilt it was decided that it should be given a name, and it was agreed to call it after **Tommy Brown**, who had been in the section since the very earliest days. **Mr. Brown**, who started at Billingham as a fitter and became maintenance charge-hand on the coke ovens in the early 1930s, was for eight years a professional footballer and played for Portsmouth—his first league club—Cardiff and Brighton before joining I.C.I.

## Mr. Hopthrow Retires

**I**T is not everyone who can look back on two quite distinct yet highly successful careers. **Mr. H. E. Hopthrow**, one of I.C.I.'s assistant secretaries since 1946, who has just retired after 32 years' service, also served with notable success in the Army, with which he was connected for over thirty years. Although never a "regular," he emerged from World War II with the rank of Brigadier, having held the post of Director of Fortification and Works in the War Office. This service earned him the C.B.E. and the U.S.A. Legion of Merit.

His first connection with the Army was in 1915 as a boy in the Royal Engineers Boys' Company at Chatham. He served in France and Flanders from 1915 to 1918. Between the wars he was commissioned in the Regular Army Reserve of Officers, and he also raised and commanded 107 Field Company, R.E., at Middlesbrough, which had close links with Billingham.

He joined Synthetic Ammonia and Nitrates Ltd. as an assistant engineer in 1926. Ten years later he joined I.C.I. Secretary's Department, where



Mr. Hopthrow

he was engaged on parliamentary and local government work.

At the outbreak of the 1939-45 war he was sent out to France. He served at G.H.Q. Arras in the Engineer-in-Chief's Department and came out through Dunkirk. Later he was appointed Deputy Chief Engineer, Home Forces, and in 1942 Director of Fortification and Works at the War Office.

In 1946 **Mr. Hopthrow** was appointed an assistant secretary of I.C.I. He is an expert on water resources and effluent problems, and for several years he has been a member of the Ministry of Housing and Local Government's Central Advisory Water Committee. He was also a member of the Committee of Inquiry into Inland Waterways.

A keen sailor, **Mr. Hopthrow** kept on the Broads *Dragon*, one of the very few Norfolk wherries still sailing in the country. In recent years **Mr. Hopthrow** has taken part in a picturesque ceremony on the Broads, taking the Bishop of Norwich in *Dragon* on Bank Holiday Sunday to St. Benets Abbey for the annual open-air service held among the ruins.

## Sporting Parade

**R**EADERS may have noticed that "Men with Ideas" has disappeared from the *Magazine* this month. In its place we have the first of a new series



PETER KNEEBONE

on sportsmen in I.C.I. Heading the list is **Mr. Harry Whittle** of Central Work Study Department, who was British Olympic Games captain at Helsinki in 1952. The story has been written by **Mr. Denzil Batchelor**, the well-known sports writer. Other sportsmen lined up for this series include footballer **Tom Gemmell**

(Nobel Division), who plays inside forward for St. Mirren and has been capped twice for Scotland, **Fenwick Allison** (Metals Division), England international rugby full-back, and **Christopher Winn** (Southern Region Sales Office), England rugby international and Sussex county cricketer.

## On the First New York Comet

**Dr. Trevor Williams**, editor of *Endeavour*, achieved a double first when he flew to New York in October. It was his first flight across the Atlantic, and he was a passenger on the first commercial Comet flight which won the Atlantic jet air race for Britain. **Dr. Williams**, like his fellow passengers, was booked on a normal B.O.A.C. flight, and it was less than 24 hours before he was due to take off from London Airport that he had his first hint that the journey might be by Comet.

In Canada and the United States he travelled over 7000 miles in three weeks, visiting centres of scientific research. These included Chalk River, Oak Ridge, Massachusetts Institute of Technology, and the Californian Institute of Technology. He also found time to visit the Walt Disney studios in Hollywood and a uranium mine in Ontario.

On 13th November B.O.A.C. again made history when it started a daily Comet service to New York. The first plane out of London on this service was piloted by **Captain Ernest Rodley**, now one of B.O.A.C.'s senior pilots and before the last war a member of I.C.I.'s London Office staff.

## Synthetic Soles

**A**NUMBER of newspapers, among them the *Star* and the *Financial Times*, reported on the formation of the Man-made Soling Association. Plastics Division is one of the seven founder members. The first job of the new Association is to launch a big publicity campaign to bring home both to the shoe trade and to the general public some of the advantages to be gained by using synthetic materials instead of leather for soles. Said the *Star*: "The giants in Britain's rubber, plastics and chemical industries have got together

to make people walk on more rubber and plastic shoes."

Plastics Division's interest is of course through 'Butakon' S, the reinforcing resin which when mixed with rubber gives a composition which



looks and behaves like leather—but lasts at least three times as long. In the United States, where reinforcing resins have been available for almost ten years, nearly half of all shoes made are soled with synthetic materials.

## New Films

**T**WO new I.C.I. films, *The Human Factor* and *Sketches for a Mural*, had their first showing recently. *The Human Factor* is about safety and was made by the I.C.I. Film Unit. It was shown for the first time to works councillors and observers at Blackpool, and was afterwards described by **Sir Ewart Smith** as a fine and moving film. It was filmed at Castner-Kellner Works and the story revolves round an accident to a fictitious employee, Stan Berry, while at work in the drum loading bay.

The film opens on a chilling note with an ambulance racing into the works. Then it takes you step by step through the accident enquiry, when each man involved in the accident comes up in turn for questioning before a four-man committee. Gradually, helped by a series of flashbacks showing what each man was doing in the few vital minutes before the accident, the story is pieced together—a series of small slips which added up to one very serious accident. And that is the theme of the film—to stay alive and be safe is not just one man's responsibility but everybody's.

*Sketches for a Mural*, the other new



film, was made for Plastics Division by the Film Producers Guild and tells in fairly lighthearted fashion the story of p.v.c.—how it was discovered in 1838 by the French chemist Henri Regnault and how it was developed by I.C.I. as a commercial proposition many years later. Some of the scenes were shot in the Division's Research Laboratories at

Welwyn and some at Hillhouse Works, where p.v.c. is made. Other shots show some of the thousand and one uses of this plastic—from waterproofs for trawlermen and as padding for the seats in the Whispering Giant down to plastic curtains in the kitchen, "rubber" gloves for washing up, and even the baby's plastic pants.

#### APPOINTMENTS

Some recent appointments in I.C.I. are:  
**I.C.I. (Export):** Mr. R. M. Maxtone-Graham (Secretary). **Leathercloth Division:** Mr. A. Duerden (Development and Technical Service Manager). **Paper Goods Manufacturing Co.:** Mr. F. W. Griffiths (Delegate Director). **Plastics Division:** Mr. B. D. G. Ogle (Assistant Accountant) (in addition to Mr. J. Levison).

## MR. H. GREVILLE SMITH

*Sir Alexander Fleck, Chairman of I.C.I., contributes this appreciation of Mr.*

*H. Greville Smith, who has resigned as president of Canadian Industries Ltd.*

ON 31st December Mr. Greville Smith laid down his responsibilities as president of Canadian Industries Ltd., the company in Canada which is the manufacturing subsidiary of I.C.I. At a recent board meeting in Montreal his resignation was accepted, and Mr. Peter Allen, formerly I.C.I. Group Director for Fibres, was appointed to the Canadian board and elected president. This event marks an important stage in the history of the Canadian company.

I should like to take this opportunity to pay a tribute in the *Magazine* to Mr. Smith and to write some lines of appreciation of the work he has done on both sides of the Atlantic for the chemical industry.

He was born in Sheffield and then studied at Oxford—Balliol was his college. After a period on the staff of Bristol University he came to Billingham, and it was there that I first met him. This was not very long before I.C.I.



*Mr. H. Greville Smith*

was formed, just at the time when Dr. R. E. Slade was ceasing to be Research Manager, to be succeeded in that post by the late Kenneth Gordon. Greville Smith was the latter's deputy and at that time did very effective work in working out the technology of methanol manufacture on the semi-technical scale. I know that Greville Smith earned for himself a fine reputation as the leader—of the staff and of the workmen—in that development.

After I.C.I. was formed he had additional responsibilities as secretary of the Billingham Executive, and this gave him insight into the widening horizons of commercial work concerned with the synthetic fertiliser industry and all its ramifications.

It was not long after Dr. Appleby (also like Greville Smith an Oxford man) arrived at Billingham that Greville Smith went to New York to be technical officer in the office of I.C.I. (New York) Ltd., assisting Mr. George White, who was then its head. I met him a number of times then and had pleasant and helpful contacts with him, such as the time when we journeyed together to Schenectady to meet the late Dr. Irvine Langmuir, the celebrated head of research work in the General Electric Company of America.

Early in 1932 Greville Smith was transferred to Canadian Industries Ltd., in which I.C.I. and Du Pont had each somewhat over 40% of the common stock and of which the late Mr. Arthur Purvis was then president. Mr. Greville Smith worked with Arthur Purvis until the latter's death in the early days of the second world war. I did not see him frequently in those pre-war days, but whenever I was in Canada I valued his ready assistance in furthering my acquaintance with the developing chemical industry.

During the war, in addition to responsibilities in C.I.L. he became vice-president and general manager of Defence Industries Ltd., a Government-owned company responsible for the production of explosives and ammunition, and for his work here he received high recognition from the Government.

In 1951, when George Huggett, who had succeeded Arthur Purvis as president, resigned that office and became chairman of C.I.L., Greville Smith became president, and that was the set-up until 1954, when the segregation of the Du Pont and I.C.I. interests took place. From

then on Greville Smith became the head of the newly incorporated Canadian Industries (1954) Ltd., which, retaining the name of Canadian Industries, became an I.C.I. subsidiary and took over all the assets of the old C.I.L. with the exception of the Nylon and Cellophane Division. No chairman was nominated, so that as president he carried the main load of responsibility in a very difficult situation when, by the agreement that was reached, something like 50% of the old staff went to Du Pont's new company, Du Pont of Canada Ltd. C.I.L. works are widely scattered, from the east where there are warehouses in the Maritimes and manufactures at Shawinigan, right to the far west where there is an explosives works on James Island off the coast of British Columbia. The segregation of these assets gave rise to many pressing problems, and we are much indebted to

him for the way those difficult situations were sorted out.

By his 27 years' work in Canada he has established for himself both a Canadian national and a scientific international reputation. Besides his activities in C.I.L. he is a director of the Bank of Montreal, of the Canadian Pacific Railway and of the Royal Trust Company, so that he is highly recognised as a leading Canadian industrialist. In 1957 British scientists elected him president of the Society of Chemical Industry, and during 1958 the annual meeting of that society was held in Canada and was presided over by him, supported as he was by a very worthy representation from Great Britain.

He has indeed earned for himself a high place in the advancement of chemical technology—a man of unchallenged integrity, of sound scientific judgment and of far-seeing commercial acumen.

#### THE NATURE OF CAPITAL (continued from page 5)

broken unless other, and wealthier, countries lend capital to these underdeveloped and low-income countries.

There are several ways in which savings can be discouraged. One is to allow inflation to continue so that it does not pay to save. If, for example, the purchasing power of money falls by more than 5% and if a saver gets 5% interest on his savings, his £105 in one year's time will buy less than £100 today. He has therefore been defrauded in a sense of the fruits of his savings. That inflation should be kept at bay in order to encourage saving is no longer doubted, even by certain theoretical economists who would have liked a small steady creeping inflation because of the feeling of uplift which such inflation gives to industry. This feeling of prosperity which a small degree of inflation gives is deceptive and in the long run extremely damaging to the whole structure of the country's economy because of the effect on the balance between savings and investment.

Another discouragement to saving is excessive taxation, particularly in the medium and higher ranges of income,

but this is too big a subject to discuss in a short article.

My final word on the structure of capital is this. Savings and investment can be brought to the right level and kept in balance either by a system which recognises that the individual is free to spend or to save as he chooses, or by a totalitarian system which forces the savings and investment into the pattern laid down by the Government. But a half-way house in which individual freedom to consume or to save is recognised, but in which the climate to save and invest is ruined by inflation, by controls or by unwise discouraging rates of taxation, will inevitably lead to economic ruin through the failure to build up capital and failure to remain competitive with Western Germany, the U.S.A. and the U.S.S.R. In a free country such as ours, one of the greatest tasks of financial policy is to harmonise the activities of those who wish to save for the future with the activities of those who build up our capital resources, and to ensure that inflation—the greatest wrecker of capital formation—is kept at bay without sacrificing full employment and progress.

#### CENTRAL COUNCIL (continued from page 24)

equally welcome news that I.C.I. was contributing £1000 to the building extension fund for Manor House Hospital.

Pensions and profit sharing came up again in the afternoon. First Metals Division (Mr. D. O'Leary) requested some sort of pension for part time workers. Mr. O'Leary referred to the "Mrs. Mopps" of I.C.I. No one could say that they did not contribute to the welfare of the community, yet they did not benefit from the Company's pension scheme. Mr. G. O. Hart (Wilton Works) referred to the high rate of turnover among part time workers. He suggested that a pension scheme might act like a carrot in front of the donkey's nose and encourage them to stay.

Nobel Division again raised the question of shares for juveniles under the Profit-Sharing Scheme, suggesting that they should be held in trust until they reach the age of 21. This brought the only two women speakers of the day, Miss Emma Hackett and Miss M. Fitzpatrick, to the microphone. At Westquarter Factory, Miss Fitzpatrick pointed out, nearly 50% of the girls were under 21 and at present had no interest in the Profit-Sharing Scheme.

After a vote, Sir Alexander said that the subject would be put directly to the I.C.I. Board.

Also on the subject of profit sharing, Mr. F. Hill reported a further change in the scheme. To combat the problem of small blocks of stock coming on the market due to employees leaving before they had accumulated 40 units—there had even been one case of someone trying to sell one £1 share—it had been arranged from 1st January for the Trustees to buy these shares back at current market prices from those wanting to sell.

Other points which ought to be mentioned include the Nobel Division motion that employees should receive an extra week's leave with pay for attendance at Scout or Boys' Brigade camps and the girls' equivalents (carried by 101 votes to 82), and Mr. Banks's proposal that Sir Ewart Smith's suggestion of a new safety target figure of 0.25 should be adopted forthwith. Finally, no report on Blackpool would be complete without reference to Sir Vivian Fuchs's brilliant marathon commentary (accompanied by 103 colour slides) on his Transantarctic Expedition.

A.E.B.



## THE CHLORINE CELL

By a special correspondent

*The chlorine cell—or rather, to use its full name, the mercury cathode chlorine-caustic cell—is still a Modern Marvel even though in cruder form it has been going for close on half a century. Mercury, because this is the metal which under electric charge helps to separate the two elements of common salt, sodium and chlorine. Cathode, because the mercury carries a negative charge and forms a negative terminal of an electric circuit (called a cathode by scientists). And chlorine-caustic because brine (salt dissolved in water) changes into chlorine and sodium hydroxide, commonly called caustic soda, under the influence of a voltage applied across the cell.*

Illustrated by H. J. Eric Smith

PERHAPS there was some special reason why Lot's wife was turned into a pillar of salt rather than into a pillar of some other material. Certainly from very early times it has been realised that salt is vital to our existence. Today salt assumes added importance as the raw material used for the production of some of our basic chemicals.

A solution of salt in water is called brine, and as early as 1800 it was observed that when an electric current was passed through brine chemical changes took place, so that chlorine and hydrogen gases were evolved and caustic soda was formed in the solution. This result can be understood when it is explained that common salt is composed of the two elements sodium and chlorine.

When salt is dissolved in water to give brine, the two elements are present not as simple atoms but as electrically charged atoms called ions. The sodium ions are positively charged and the chlorine ions are negatively charged and of course these are present in equal amounts, so that the solution is electrically neutral. If now a direct electric current passes across brine between two terminals of an electric circuit (called electrodes), the positive sodium ions move towards the negative electrode (cathode) and the negative chlorine ions towards the positive electrode (anode). At the electrodes these ions lose their electric charge, and as a result chlorine is evolved as a gas, but the sodium when released in the presence of water forms sodium hydroxide (caustic soda) and hydrogen. The hydrogen, being a gas, escapes like the chlorine, but the caustic soda remains behind in solution.

These results are only attained if the chlorine and caustic

soda are kept separate, because if they come together they react in such a way that salt is formed again along with other chemical compounds.

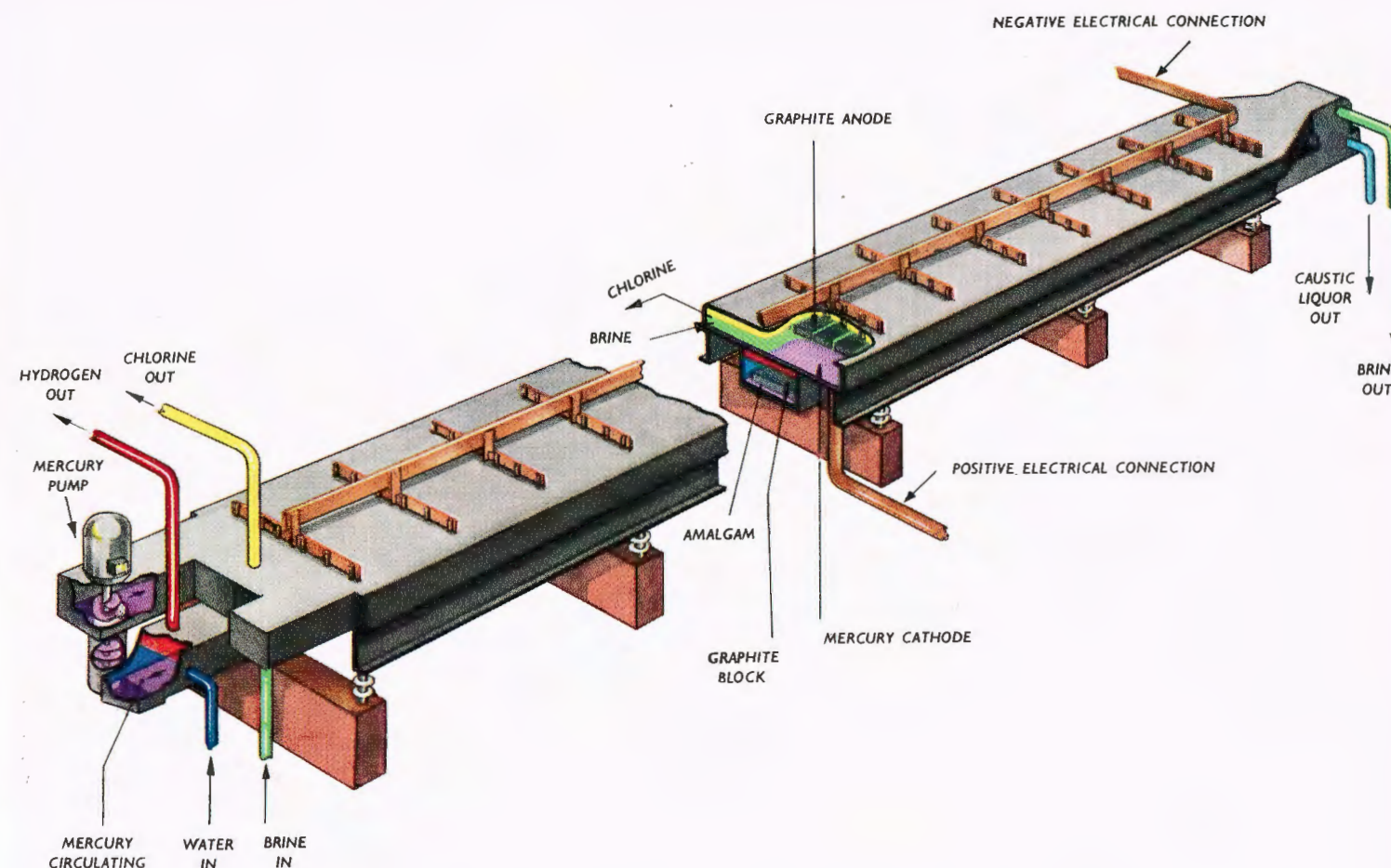
In order to develop the process on the commercial scale it was therefore necessary to devise methods for keeping the chlorine and caustic soda separate from one another. This was one of the reasons why large-scale electrolytic manufacture of chlorine and caustic soda did not appear until the end of the nineteenth century, although its possibilities had been realised in 1800. Another important factor in the delay was that means of providing the large amounts of direct electrical current required were not available until after 1800, following the development of the dynamo by Siemens, Wheatstone and Varley.

Eventually two entirely different ways were found for keeping the chlorine and caustic soda separate from one another.

1. By placing a porous diaphragm between them in the cell compartment in which they were first separated.
2. By constructing the cathode in the form of a shallow flowing layer of mercury in which the sodium dissolves and becomes much less reactive.

The flowing layer of mercury is the basic principle of the modern mercury cathode chlorine-caustic cell.

A. J. Nolf, a Belgian, was probably the first man (in 1883) to use a mercury cathode to dissolve the sodium freed during brine electrolysis; but it was Hamilton Young Castner who first used the mercury as a carrier to take the sodium away from the chlorine and then react it with water in a separate vessel to produce high-purity caustic



soda. In 1892 Castner invented an electrolytic cell to which a rocking action was given to make the mercury flow. Later inventors, in about 1900, instead of rocking the cell circulated the mercury by pumping it through a stationary, elongated and much larger apparatus. But one of the original rocking cells is still preserved in the factory where Castner worked and in which his name can never be forgotten—Castner-Kellner Works in the General Chemicals Division.

Basically the modern mercury cell consists of two elongated troughs, both slightly inclined: the brine cell, where the salt solution is decomposed by the electric current, and the soda cell, where the solution of sodium in mercury (called sodium amalgam) is reacted with water. In the brine cell the anodes consist of graphite blocks connected through the roof of the cell to copper electrical conductors and the positive terminal of the electricity supply. The mercury cathode is in direct contact with a steel frame supporting the bottom of the trough, and this frame is connected to the negative terminal of the electricity supply.

When the process takes place, brine flows along the brine cell between the graphite and the mercury. A heavy (high amperage) electric current passes and the brine decomposes. Chlorine gas, liberated on the graphite blocks, collects above the brine surface and leaves through

a pipe in the brine cell cover. The mercury, now containing sodium from the decomposed brine, flows below a partition at the end of the brine cell into the soda cell, where it meets a stream of water. Both flow along this cell, the mercury becoming poorer in sodium and the water richer in caustic soda.

The reaction of the water with the sodium in the mercury can be accelerated by placing solid blocks of graphite or iron grids in the soda cell. Hydrogen liberated from the water after its reaction with the sodium leaves the soda cell through another pipe—a third very useful product of the mercury cell process. At the end of the soda cell trough, the mercury, now containing very little sodium, collects in a pool, from which it is raised by a screw pump to the upper end of the brine cell. The whole cycle is then repeated.

Although the mercury cell is fundamentally simple, improvements are constantly being sought. These are mainly to achieve greater efficiency in the use of electrical energy—the largest item of cost in manufacturing electrolytic chlorine and caustic soda. Having been one of the pioneers of the mercury cell process, I.C.I. has always produced the bulk of its chlorine by this route. As the years have passed other manufacturers have increasingly adopted it, and it is now a world-wide process of growing importance.



# Scotland For Ski-ing

By John Fox (Bellingham Division)

Scotland is not Switzerland. The snow lies in drifts, and the bare mountainside is never far away. But for all that springtime ski-ing in Scotland has caught on—ski-lift and all.

*Photographs by the Scottish Ski Club and Mr. B. J. H. Mattinson (Wilton Works)*

**A**BOUT 1891, an Englishman, E. C. Richardson, experimenting at Davos in Switzerland, discovered that the Scandinavian technique of negotiating deep snow on strips of wood called skis had the potentials of a healthy and amusing sport.

From the enterprise of such enthusiasts ski-ing has developed. To those who have been fortunate enough to experience the thrill of a first descent on skis in deep powder snow in the sparkling conditions of an early spring day in the Alps, the call to return to the mountains comes irresistibly year after year. Even so, the precious fortnight in the stimulating atmosphere of an Alpine ski-ing village is possible but once a twelvemonth, and to many British skiers much more rarely. Thus, the urge to get on skis more frequently, especially when our temperamental native climate produces a nice fall of snow, has led to the discovery that the humble hills of Britain can often offer very enjoyable sport.

Foremost in attraction are the Cairngorms, to the east of Speyside in the central Scottish Highlands, and Glencoe, Argyllshire, some seventy miles to the south-west. Both these areas have a relatively high altitude, over 3000 ft., and broad northward-facing slopes fissured by deep



**The Glencoe Scottish Kandahar** *course on Easter Sunday last year. Typical spring ski-ing, no snow in the valley, and a warm still day.*



The start of a run *on virgin snow*. Loch Avon lies below.

“corries,” where, with the help of the wind, snow accumulates each winter to great depths and survives even protracted periods of thaw, often until early summer.

In these gullies the typical conditions are a hard surface with drifts of blown snow, on which fine skiing can be enjoyed on the long spring days of March and April, provided one is prepared for sudden and adverse changes of weather. Two successive days may be quite different—the first calm and sunny with magnificent views, but the next unrelievedly foul and cold, with very gusty winds. It is thus vital to go well prepared with warm layers of waterproof clothing which can be shed if necessary.

Unquestionably the greatest deterrent to British ski-ing in the past has been the lack of mechanical uphill assistance, which is now so general in continental resorts. Although some hardy veterans of the early days of ski-ing (when there were no lifts) may have regrets, the enterprising members of the Scottish Ski Club have now begun to remedy this deficiency.

There are already several short rope tows in





different parts of the Highlands, but the major achievement has been the construction of the first long ski-lift in Britain on Meall a Bhuidh, a mountain in Glencoe which has particularly deep and wide corries. The lift has been in operation since the 1956 season and gives an uphill lift of 900 ft. on single-seat towbars, for £1 a day. On a good day an average skier should manage ten or more runs, which is 9000 ft. of downhill skiing—a wholesome and well-deserved reward for the initial hour's climb from Glencoe to the foot of the lift.

The photographs which illustrate this article give a number of different views of Meall a Bhuidh (pronounced "Voorie"), which in Gaelic means "The mountain of the roaring stag." The skiing here is by permission of the owner of the deer forest of which the mountain forms a part. One interesting innovation, which has reaped dividends this last season, has been the construction of a "snow-trap" fence on an exposed section of the tow where previously much hard shovelling was needed to keep the track in order. The idea originated from the Road Research Council, who use the same device along the verge of a road to trap drifts before they begin to build up, which is exactly what is wanted on a ski-tow track. Another task, which in the summer occupies those members of the Scottish Ski Club who like making bangs,

is the improvement of the downhill runs by blasting away bits of unwanted mountain with our own Nobel Division's explosive.

The ultimate effect of all this on the standard of skiing in Britain can hardly be held in doubt. At last continuous practice in downhill running can be held at home, and there is regular instruction at Glencoe and in the Cairngorms from January until early May. Perhaps in twenty years' time a Scots lad from Glencoe may be competing with the best Austrians and Swiss on their own terms, for the hard snow of Scottish skiing is particularly suitable for slalom racing.

Slalom racing is the art of skiing at high speed through flagged gates set in continuous tight steep turns, devised originally by Sir Arnold Lunn, who has done so much to encourage British skiers. There are a number of slalom races each season now at Glencoe, culminating with the Scottish Kandahar on Easter Sunday, which attracts many good skiers and an army of spectators from all over Britain.

However, for most people the great pleasure is just to get on skis for a few days each year with kindred spirits and work off some surplus energy. You can do this to full measure on Meall a Bhuidh and return in the evening, tired yet happy, and sometimes even suntanned.



*Adjusting skis before a climb on Glencoe*



*Going up on the ski-lift opposite Ben Nevis*



*Near the top of the ski-lift, beside a hut*



*Looking down Glencoe before a run*



# Apprentice Days

By William Greenlees (Nobel Division)

Illustrated by Sheila Ross

WITH schooldays behind me and the future beckoning I decided to gratify the interests of the town's only electrical shop and cast off as an Apprentice Electrician.

My first interview with my employer to be was memorable inasmuch as he gave me a cup of tea and kindly looks, and called me by my Christian name. He was destined to call me many names in the years that lay ahead, some of them downright un-Christian, and I look back on the tea-party as a Borgia effort with only the poisoned goblet missing.

"The wage is seventeen shillings a week, son, but we'll no' split the pound."

I was delighted with this extravagance, so happy I would gladly have kissed his wife and patted the cat. Instead I fought back my feelings, stammered my thanks, and with true Scottish caution asked if my future, then, was secure with him.

"Oh aye, ye'll no' get the books while you're an apprentice with me, son, unless of course you go off the strait and narrow."

Solemnly I asserted that my inborn honesty was incorruptible; but I spoke in ignorance, for I had no idea what a poor walking surface the strait and narrow had compared to the broad road. Nor did I know that the "basic" pound a week was inclusive of two or three nights' overtime.

The journeyman I served my time with was an excellent tradesman, with all the tricks of the trade at his finger-tips or on the tip of his tongue. For I found that patter was a first essential in house wiring. A golden tongue meant tea and cake and, if it did its job well enough, a tip at the parting of the ways. My manners were closely scrutinised and sharply criticised. Talk was discouraged: sweep up as soon as dirt fell, wipe feet well on the doormat, and say "Dash it!" when the hammer head missed everything but your unprotected hand.

So an unholy alliance, man and boy, was formed, eager to exact toll from the humblest to the Lady who had the mansion on the hill.

We staggered up the hill towards her Ladyship's residence, the journeyman weighed down with responsibility; the apprentice with tools, cable, and a pep talk on his behaviour in this most important job. Naturally we went round to the tradesmen's entrance and knocked discreetly, with no effect; for the cook was deaf and the maid was upstairs. We gained admission eventually and tiptoed through to the grand hall, where her Ladyship awaited us. There may have been other ladies in town, but none of them had the title to prove it.

"Good morning, gentlemen. You do have rubbers on your shoes?"

The journeyman dutifully showed his rubber soles and vouched for me; which seemed rather a rash thing to do, as I had on my best hobnailed boots. Following in their wake I trod softly, but fate intervened when we came to the stairway—polished wood bereft of carpet. Each step I took resounded like a bell. I had the feeling it was tolling for me.

The day passed quickly enough, with the journeyman putting on a performance that would not have disgraced the Old Vic. Would her Ladyship pay the price of a stall seat? That was the question. But reward was at hand, for after thanking us profusely her Ladyship enquired if we smoked. I didn't, but as far as the customer was concerned, I did. The maid was summoned and returned with a box of cigarettes. Her Ladyship broke the seal, and the journeyman's nudge was unnecessary. Even I could see that all those neat rows of gaspers were for us (or, more accurately, for him).

Smilingly she advanced towards us. "Will you have one, please?"

When working in lofts or below the floor, candles are of more use than torches. They did have a disadvantage, though, as I found on one job when a lighted candle fell from a loft joist down the cavity between wall and lathing and continued to burn ever bright.

"Quick—get some water!" The journeyman sounded agitated, so I took the hint and nipped smartly into the toilet, which was just beside the loft hatch. I filled a tumbler and ran out, only to come face to face with the housewife. An apprentice dashing out of a bathroom with a glass of water in his hand was obviously not common enough to escape enquiry.

"Is your friend sick?" she said sweetly.

In a way I suppose he was, so I nodded vigorously, spilled more water and clambered up the steps.

My "friend" had regained his composure by the time I reached him and acted naturally. "What the blankety-blank kept ye?" I winced at this injustice and replied in a spirited and manly fashion without committing the capital indiscretion of opening my mouth. The water was carefully poured down the cavity, and with a pathetic splutter the candle erred no more.

Quickly I told of the chance meeting with the lady of the house and how I had admitted to his being sick. It was too good an opportunity to miss, and before many minutes were passed he was sitting down to tea, feeling "a little better" and able to take some nourishment. I joined the tea-party rather later, for, in the best tipping interest, I had been sent up to the toilet to mop up the drops of water I had spilled.

Yet life was not all humour. There were times when my lack of tact and observation caused embarrassment. One case especially remains in my memory.

We had been sent to do a few days' work at a house occupied by four spinster sisters, ages ranging I suppose from forty to sixty. Before long it was obvious that Kate, the youngest, was the favourite of the household. She it was who selected all the fittings in company with one of her sisters, who had the irritating habit of describing the articles in every detail of colour and shape. Yet Kate chose them. When our stock was shown, she said simply "We'll have the yellow one" or "We'll have the cream and red." Whatever

her choice there was never any argument, and I never heard any of the sisters raise the slightest protest to her whim.

There was one more occupant of the house—a smooth-haired fox terrier, who in the best canine tradition jumped up on everybody, stole tools and gloves, and generally invited a cuffing. But with Kate he was never boisterous, always reserved and good.

While we were there Kate caught a cold and was confined to bed. She lay with the bedroom door open, looking out at the hall and receiving cheery visits from her sisters.

I had been installing the light fitting in the hall—one she had selected—and as I looked through the bedroom door I spoke to her. "How do you like your fitting now it's up?"

She stirred and faced me. "I doubt if I'll ever see it," she said simply.

I was rather startled at this. Though she might just fail to see it from her bed she would be up in a day or two, and such pessimism seemed wholly out of place. But I said nothing more, though I remember thinking Kate's sisters had spoiled her terribly when a simple cold brought on such self-pity.

Later that day it hit me, and like a jig-saw all the pieces started to fit.

The over-concern of her sisters might be to make up for something Kate had missed all the days of her life. The choosing of all the furnishings of the home, always with a sister to describe each item, might be their way of showing her she had a full place in their lives despite her handicap.

Yes; Kate was blind, and a dog had known by instinct what I had failed to appreciate with all my senses. Yet in her mind she had pictures of every fitting we installed, patiently given with the love and tact of her sisters. So maybe Kate did see them all bright and new, never tarnishing, and every one a tribute to her taste and vision.



... feeling a little better



# Central Council

One of the longest Central Councils on record took place at Blackpool in November. Profit sharing, pensions and premium bonds were among the topics under discussion.

**B**ACK at Central Council once more after a gap of 18 months, Sir Alexander Fleck set the meeting off to a good start with a stimulating address from the chair.

But first he broke the news of the coming retirement (in March) of Sir Ewart Smith, one of I.C.I.'s deputy chairmen, and spoke in particular of his work "in spreading the gospel of work study" and in initiating the Employees' Profit Sharing Scheme. "My colleagues and I," said Sir Alexander, "shall greatly miss him on the Board."

From people he went on to pounds, shillings and pence—I.C.I.'s half-yearly results. The value of group sales for the six months up to 30th June 1958 was £232 million, Sir Alexander reminded Council. Allowing for the transfer of our copper and tube alloy interests to Yorkshire Imperial Metals, this showed a very small increase in the turnover over the same period in 1957. The Company's net income, however, was only £13.6 million, a decrease of nearly £2½ million. Sir Alexander suggested that we should ask ourselves what were the reasons for these results, which while good in many ways were in others not so satisfactory, and to what extent it was in our power to improve them.

The value of production in Britain had fallen 3% in the first six months of 1958, so it was inevitable that I.C.I. as an important supplier of materials to the rest of industry should be affected. Sales of new products had been adequate to maintain our turnover, although not so big as hoped, remembering the large amount of additional new capital we had put into our business. Some plants had been working well below normal capacity. On top of this there had been increases in wages and salaries, fuel and transport costs. Finally,



*Sir Alexander Fleck speaking at Blackpool*

the sum set aside for plant depreciation had had to be raised from £11.7 million to £14.4 million.

All these factors had had a direct bearing on profits, said the Chairman, and to that extent the fall in profits was not wholly within our control. "At the same time, unless we can put our hands on our hearts and say with a clear conscience that there has been no waste of effort or material in production or maintenance, no lack of drive in our selling, no lack of imagination or inventiveness in our research, which few of us can do, then it seems to me there is still plenty of scope for improvement and a need for us all to make greater efforts."

As a footnote Sir Alexander said he thought there was no case for going to the extreme of despondency. In the first six months of this year the leading American chemical companies had fared far worse than we did. Their profits were down 30 and 40% on the corresponding period for 1957 compared with our own 15% drop.

Concerning some recent cases of redundancy, Sir Alexander pointed out that these were not always due to market conditions. The new emphasis on guided missiles in the new defence programme had particularly affected Metals and Nobel Divisions. Sometimes redundancy was due to a change in Company policy, such as the recent closure of

Burn Hall Works following our association with Ilford, or in production techniques which had led to the closing down of open pan salt manufacture at Carrickfergus, Stafford and Winsford Works. Since Council last met, some 500 people had been affected out of a total payroll of 75,000.

Still on the subject of redundancy, the Chairman mentioned a new scheme, which I.C.I. had worked out with the trade unions, which provides for longer notice to redundant workers with more than one year's service



*The forty-sixth Central Council in session*



and—for those with three or more years' service—payments for a time after they have left the Company's service and are seeking other employment.

Wilton's new wages-through-a-bank scheme was the first item on the agenda, and Mr. V. Goodsell came to the microphone to report progress. It was going very smoothly, he told Council. Last May, when it started, 193 employees opted for the scheme. Now the number stood at nearly 600, although no special effort had been made to sell the idea, and 51 banks around Teeside were involved.

### Premium Bonds Motion Rejected

Next Mr. R. A. Banks rose to his feet to give the Board's reply to the suggestion sent up from Scarborough that I.C.I. should provide a scheme for buying premium bonds similar to the present one for national savings certificates. The answer to this was no. It was not, Mr. Banks explained, that the Board was in any way prejudiced against premium bonds—he had some himself and had won £25 in the first draw. The reason was that running such a scheme presented very considerable administrative

problems—for a start not less than twelve new forms would be needed to operate a scheme. There was already a pretty good coverage of other savings schemes, and the increased encouragement to save would, the Board felt, be very marginal.

Profit sharing, a hardy annual at Central Council, came up next. Mr. Banks again rose to give the Board's reply to the resolution that an annual distribution of stock under the Profit-Sharing Scheme should be made after employees had once qualified for a block of 40 £1 shares. He said that the Company, of course, wanted to encourage employees to keep their stock, and thought this would be best helped by handing out only in a considerable block.

He knew that some held the opposite view, that people would hold on to small dribbles of stock where a larger block would be temptingly right for, say, a TV set. We would probably never know the answer to this, but the Board had thought about it a good deal and listened carefully to the views expressed at Central Council, and it had been decided, at any rate for the time being, to go along on the present lines and only distribute stock in blocks of 40.

An added reason for this decision, he said, was that the Stock Exchange disliked handling small blocks of shares, and alterations in this direction might affect the price of our stock.

An evenly contested debate followed on the question of revising the qualifying service period for participating in the Profit-Sharing Scheme. The debate eventually crystallised round an amendment proposed by Dr. I. J. Faulkner (Billingham Division) to the effect that an employee should qualify after twelve months' service instead of after a whole calendar year as at present, and that a man's first bonus should then be calculated by the month. Dr. Faulkner's motion was finally carried by a substantial majority and goes to the I.C.I. Board for consideration.

### Pension Problems

Another much-discussed item was the resolution asking for an increase in the value of back contributions for the war years paid by wartime employees who joined the Workers' Pension Fund when it was reopened in 1946, the increase to be on the lines of that already granted on pre-war contributions. The case of this small group of employees was pleaded spiritedly by Messrs. Kewley and Brookes (General Chemicals Division) and by Mr. E. Hutton (Billingham Division), and the motion, which was defeated at Scarborough last May, was this time carried by 124 votes to 32 and so goes up to the Board.

Also before lunch came Mr. Banks's announcement that the Board had considered Council's resolution asking for an increase in the special payment made to works first-aiders and had decided to increase this by about 50%. Dr. R. Holroyd followed Mr. Banks with the

(Continued on page 13)



Studies in concentration among members of Dyestuffs Division taken without flashlight. Above: Mr. J. Buchanan (Grangemouth). Below: Dr. H. Samuels (Director), Dr. J. B. Peel (Derby Works Manager), Mr. H. Harrison (Director) and Mr. W. Clowes (Trafford Park).

1. Mr. J. C. Pickstock (Salt Division) and Mr. A. H. Frier (Leathercloth) exchange views. Left (holding a pencil) is Mr. W. K. Wainhouse (Leathercloth).

2. Sir Vivian Fuchs autographs copies of his book. Also in the picture: Mr. J. Horton (Nobel), Dr. R. V. Seddon (Nobel) and Mr. G. S. J. White (Dyestuffs).

3. Management representative Mr. G. Lindley and (right) workers' representative Mr. G. L. Stephenson, both of Lime Division

4. More smokers. Mr. J. L. S. Steel (Economic Planning Director) and Mr. E. A. Bingen (Overseas Director). On the extreme left is Sir Ewart Smith (a Deputy Chairman).

5. Linking up with Sir Vivian's talk—a display of I.C.I. products taken on the Transantarctic Expedition.



# NEWS IN PICTURES — Home and Overseas



**"The Small World."** In the foreground is "The Small World," photographed while undergoing trials in England. As we go to press, this 'Terylene' balloon in which three men and a woman set out to cross the Atlantic from Tenerife on 12th December, is already several days under way and the flight is expected to take from one to three weeks. The venture has the patronage of the Duke of Edinburgh. The balloonists are using 5000 ft. of 'Terylene' rope. Hydrogen to fill the balloon was supplied by Billingham Division



**Windsor Castle model.** Mr. Michael Lacey (right) of Head Office has made in his spare time what is believed to be the first complete model of Windsor Castle. It was commissioned by the British Club, Zürich, and other British and Commonwealth residents in Switzerland for presentation to Rapperswill Castle Museum. Mr. Lacey is seen here with Sir Owen Morshead, former Windsor Castle librarian. (See story on page 10.)



**"Terylene" in hospitals.** Our picture shows 'Terylene' laundry bags now in use in a north of England hospital. Old-type cotton laundry bags would not stand up to more than 70 washes—these have been washed 200 times and are still in first-class condition



**Easier said . . .** Members of Nobel Division Dri-Ski School watch a demonstration "schuss" run on coconut matting, given by a Norwegian instructor. Onlookers found the "schuss"—a downhill run—not so simple as it appeared. (See story on pages 9 and 10.)





**Mr. G. Haddock**, Managing Director of Leathercloth Division, retired on 30th November after 45 years' service with the Company and its predecessors. At Central Council, held just before his retirement, the Chairman, Sir Alexander Fleck, paid tribute to his work for the Company and for the Council



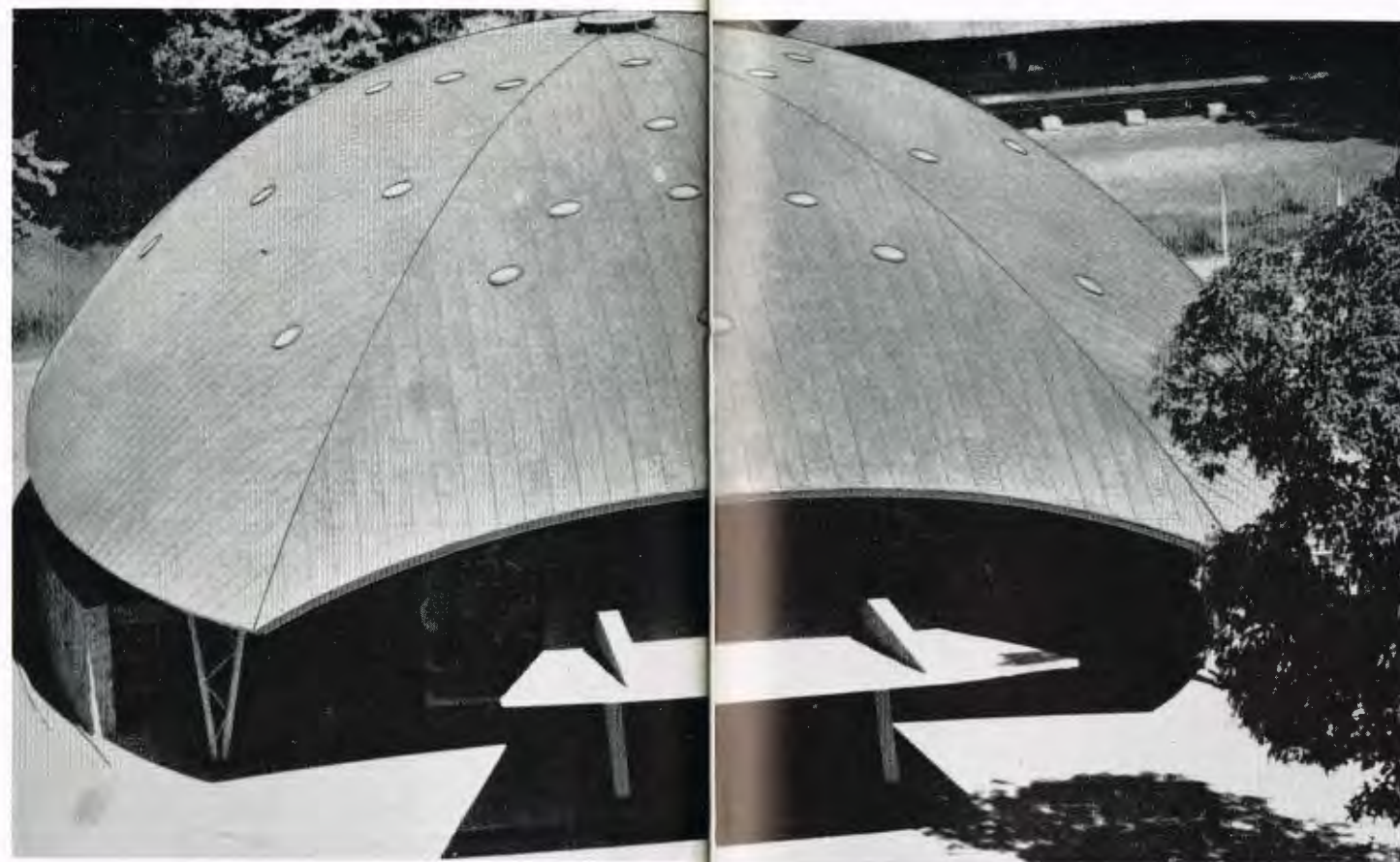
At Central Council **Mr. E. R. Lightfoot**, Deputy Head of Pensions and Assistance Funds Department, was presented with a gold pencil by Mr. E. Hutton (Billingham) on behalf of the worker representatives and observers. Mr. Lightfoot retired at the end of December after just over 48 years' service



**Mr. J. D. Maughan**, Works Manager of Alkali Division's Winnington Works for the past five years, retired on 30th November after nearly 38 years' service. As Winnington Works Manager he has been in charge of something like 2500 men and 200 women



The unequalled record of attendance at every Central Council meeting since the Works Council Scheme started and also every meeting of his Division council, held by Mr. C. L. Moore, Works Manager at Smethwick Works, Paints Division, was quoted by Sir Alexander Fleck at Central Council. Mr. Moore retired at the end of the year



**Design in copper.** A striking example of the effective appearance of copper roofing in modern architectural design is shown in our photograph of the Engineering College assembly hall at Rangoon, for which Metals Division supplied copper strip to the roofing contractors, by S & Co. Ltd.

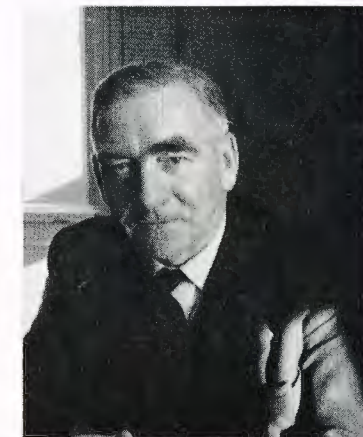


**New bus station.** Billingham Division's new East Gate entrance. The bus station, shown in our picture, which is a major feature of the East Gate scheme, allows a total of 26 buses to unload or pick up at the peak period

was formally opened by the chairman of Durham County Council. East Gate scheme, allows a total of 26 buses to unload or pick up at the East Gate



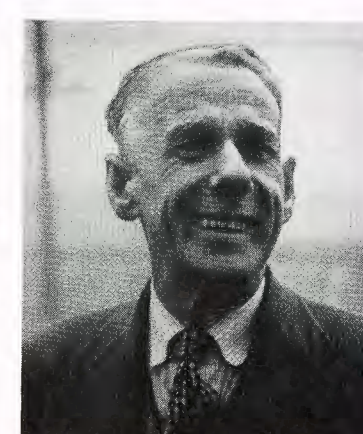
The Safety Trophy, won for the first time by Wilton Works, as a whole, was presented to Mr. J. C. H. McEntee, chairman of the Wilton Council, by Sir Alexander Fleck at Central Council



**Mr. T. Crompton** left I.C.I. at the beginning of December to join the board of Yorkshire Imperial Metals Ltd. as Financial Director. He had served the Company for more than thirty years—twenty of them at Salt Division. He became Chief Accountant there in 1946 and a member of the Division board in 1949

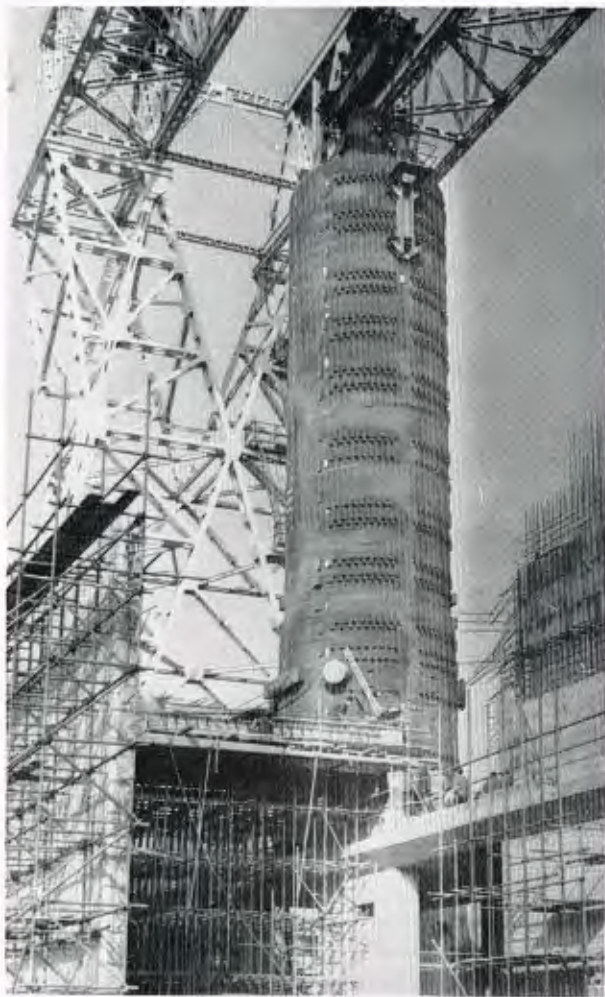


**Miss Hidemi Fukazawa**, a junior clerk working for I.C.I. (Japan) Ltd., has won first prize in a competition among the employees there for a suitable design for an official Christmas card. Her painting of the pagoda at Nara was chosen



25th November has always been an important date to Mr. J. Hamilton. It is his birthday, and for the past fifty years it has been doubly significant, as he also joined Nobel Division on that date in 1908. Trained as a cooper, Mr. Hamilton worked at Gatebeck and Ardeer Factories. On 28th November 1958, when he retired, he received a congratulatory letter from Sir Alexander Fleck and a 50 years' service award





**Nuclear tubing.** This heat exchanger, which is being built for Bradwell nuclear power station, contains 'Integron' finned steel tubing specially developed by Metals Division for the nuclear engineering industry



**Cue king.** Billiards and snooker enthusiasts were thrilled recently by an exhibition of skill by Joe Davis (third from the left) at Stourport. He is seen here with his opponents F. Thomas, A. Griffiths, T. Nicholls, C. Glover and W. Woolley, all members of the Steatite and Porcelain Products Recreation Club



**Motor Club veteran.** Mr. J. Stuart White, former Bradford Explosives Area Sales Manager and now over 80, taking part in Ilkley Motor Club veterans' trials



**Harder Outward Bound.** Apprentice joiner Robert Kirk and instrument artificer George Watson (both of Nobel Division) receive their travel vouchers from department labour officer Mr. H. T. John before setting off for the Moray Sea School. They had been selected to attend a special Outward Bound course for 19-23-year-olds. Robert is 20 and George 22



**'Alkathene' in Ceylon.** From I.C.I. (Export) Ltd. comes this photograph of the first extrusion of polythene film in Ceylon with 'Alkathene' granules. Our picture shows Mr. D. A. Carnegie (Colombo Plastics Manager), Mr. J. B. Hanger (I.C.I. (India) Private Ltd.), Mr. B. H. Darley (Colombo Manager) and Mr. G. H. Moosajee (proprietor of the plant)

# Well-timed Severity

By Roy Shirley

*How much can be done on either side will depend largely on the factor of supplies . . . Our heavy bombers, whom alone the weather does not ground, have continued to attack the central supply sources of Germany—Cologne, Bonn, Trier and the rest—with well-timed severity—Scrutator of the Sunday Times, 24th December 1944.*

THE lights were on and the hut had broken into movement when I awoke. I lay still for some minutes with that uneasy feeling of knowing that I was troubled about something and not quite aware of what it was—reluctant to leave the snug warmth of the blankets and anxiously hugging the security which they offered.

It was cold and penetratingly damp in the hut, and the centre stove, with its chimney pipe angled drunkenly through the corrugated iron roofing, gave no response to the irritable poking and curses of the men close by who quickly gave up and sullenly pulled on unfriendly clothes.

Sitting on the edge of the bed I considered the routine of washing and decided against it—time enough later, I thought, and struggled into my battle-dress. As I finished dressing I thought of the trip which lay ahead. Briefing was in fifteen minutes' time at 05.30 hours, and I wondered whether the whole thing would be put off yet again, as it had been for the past four consecutive days.

Inside the main briefing room most of the crews were already gathered, and nobody looked very happy. I moved through the throng of men and found my skipper and the other members of my crew slumped down on some folding wooden chairs.

"Hallo, Reg," I mumbled, and gestured acknowledgment to the rest of the lads. "Think it'll be scrubbed again?"

"No fear," he said with a grin; "we'll have to press on this time, boy—Rundstedt's nipping along too smartly."

The date was Saturday, 23rd December 1944, and the Germans were making desperate efforts to break through the allied armies in the Ardennes. It had been established that a dangerous amount of enemy supplies were being routed through the railway junction of Köln-Nippes, part of the Cologne marshalling yards, and this was the target for which we had been briefed on each of the past four days.

The Squadron Commander was once again going over the plan of attack. The main trouble was the weather. Thick fog and ground mist had clamped down over the entire southern and central area of England and showed little likelihood of lifting. The target was to be hit in a daylight attack by twenty-four Lancasters of R.A.F. Path Finder Force using radar equipment to pinpoint the target through the estimated ten-tenths overcast. Up to now the operation had been postponed each day because our fighters had been unable to carry sufficient fuel to enable them to escort us to the target and to return to airfields in the north of England which were not affected by the weather.

The Squadron Commander paused on the matter of fighter cover, then said slowly: "It will not be possible to provide fighter escort in the circumstances unless there is an unexpected clearance in the weather by the estimated time of departure at 10.30 hours." A shuffling of feet mingled with low whistles and a few mock-heroic cheers dwindled out as he went on in an even tone: "Everyone here will understand the vital importance of this operation when I tell you that it is absolutely essential to the entire strategy of our land offensive in this sector to ensure that the enemy



is denied the use of the Köln-Nippes railway centre. The Germans are known to be depending on that junction to bring up men and materials in support of Rundstedt's attack, and he can do a hell of a lot of damage if he's not stopped quickly. That's all, gentlemen—I know you'll do your best—and good luck!"

He sat down quietly and motioned to the Meteorological Officer to take over.

Breakfast in the mess was good. Whatever our inner thoughts about the operation ahead of us, we maintained a reasonable outward calm—it was just another trip. We had made daylight attacks before. (Yes, but not with such a small force as twenty-four aircraft!) Well, no; but we'd been to targets deeper in Germany than this in daylight. (Not without a fighter escort, though!)

We finished the meal and started to drift in a gathering stream towards the crew room.

I changed unhurriedly into flying kit, taking care not to work up any perspiration, as gunners' electrical suit-heating apparatus had been known not to function; in such an event excessive perspiration was liable to freeze in the sub-zero temperatures at 20,000 feet. Frostbite was no vague threat to a gunner, often bitterly cold and isolated from his crew in an unheated gun turret.

I wondered whether the others were feeling as apprehensive about the attack as myself. There was no way of knowing—we all kept our own counsel in our common danger. I zipped up my outer suit, lit a cigarette and leaned back resignedly against the locker—alone with my fears and thinking about the rest of them.

"Pip," the wireless operator with a D.F.M., gained on his first tour on Hampdens in the early days of the war; Reg, the pilot, a boyish, rosy-cheeked smiling man from Shropshire, holding a D.F.M., also won earlier; Ken, the flight engineer and our bomb aimer, a tall fair-haired boy from Cricklewood with a D.F.C.; Dave, a decisive man with bold Semitic features, inseparable from his co-navigator Tony, the quiet family man with a nine-year-old daughter; and Vic, the rear gunner, a detached, enigmatic personality whose wife was expecting their first child at any time.

By common consent we made our way outside to the perimeter. The visibility was down to less than thirty yards as we moved towards the aircraft with slow, ponderous steps, heavy with the bulk of clothing and equipment.

The engines were started up and Reg began running them up to 2800 revolutions per minute against the chocks. The entire aircraft was shaking furiously as each engine was checked, and the angry roar finally subsided to a muted belligerence as Reg's voice came over the intercom in a noisy crackle.

"Hallo rear gunner—everything O.K. back there?" There was a delayed click, then Vic was answering. "All O.K., skipper—can't see anything too well, though."

"Never mind," Reg said, "it can't get much — worse—how about you, mid-upper gunner?"

"Yes, fine, skipper," I joined in. "You O.K. up front?"

"Never had it so good!" He laughed, and passed on to the remainder of the crew in turn, and finally the phones fell silent.

The engine note increased perceptibly as we taxied cautiously out of the dispersal point on to the airfield perimeter track and lumbered slowly round to the runway, the guide lights winking fitfully through the fog. Reg swung into line for the take-off, released the air brakes with a jerk, and we were rolling swiftly along the runway, vibrating crazily as we increased speed—hurtling blindly into the wall of fog, the engines screaming as the flight engineer went "through the gate" into full boost and maximum revs. I thought, almost absently, "If anything goes wrong now, we've had it." The violent bumping stopped abruptly and the aircraft took on a smoother motion as our wheels came off the ground, and the engine noise dropped reluctantly as Ken slowly brought the revs back.

Tony's voice came quietly over the intercom: "Hallo skipper, first course 180° for Reading."

We started turning on to course while Reg acknowledged and continued climbing steadily through the cloud. I settled back, wondering how high this cloud reached before breaking up. We ploughed on through the cumulus—no sight of the ground or sky—to the first turning point over Reading at 10,000 feet. It looked as if "Met" were right—no signs of a break anywhere, and my eyes felt sore with the strain of peering into the sodden atmosphere.

"Navigator to pilot—course change, skipper, on to 175° in thirty seconds from now."

The intercom spluttered emptily for a moment, then Reg answered: "Thank you, Tony—175° in thirty seconds."

I stopped rotating the turret and leaned back, opening and closing my eyes in respite and wondering

# The London Gazette

Of TUESDAY, the 20th of MARCH, 1945

Published by Authority

Registered as a newspaper

FRIDAY, 23 MARCH, 1945

Air Ministry, 23rd March, 1945.

The KING has been graciously pleased to confer the VICTORIA CROSS on the under-mentioned officer in recognition of most conspicuous bravery:—

Acting Squadron Leader Robert Anthony Maurice PALMER, D.F.C. (115772), R.A.F.V.R., 109 Squadron (Missing).

This officer has completed 110 bombing missions. Most of them involved deep penetration of heavily defended territory; many were low-level "marking" operations against vital targets; all were executed with tenacity, high courage and great accuracy.

He first went on operations in January, 1941. He took part in the first 1,000 bomber raid against Cologne in 1942. He was one of the first pilots to drop a 4,000 lb. bomb on the Reich. It was known that he could be relied on to press home his attack whatever the opposition and to bomb with great accuracy. He was always selected, therefore, to take part in special operations against vital targets.

possibility of taking avoiding action. He knew that if he diverged the least bit from his course, he would be unable to utilise the special equipment to the best advantage. He was determined to complete the run and provide an accurate and easily seen aiming-point for the other bombers. He ignored the double risk of fire and explosion in his aircraft and kept on. With its engines developing unequal power, an immense effort was needed to keep the damaged aircraft on a straight course. Nevertheless, he made a perfect approach and his bombs hit the target.

His aircraft was last seen spiralling to earth in flames. Such was the strength of the opposition that more than half of his formation failed to return.

Squadron Leader Palmer was an outstanding pilot. He displayed conspicuous bravery. His record of prolonged and heroic endeavour is beyond praise.

how close the other aircraft might be. The Lancaster thundered doggedly on, pitching unevenly from time to time in the bumpy atmosphere, rivulets of water streaming down the outside of the 'Perspex' panelling adding to the difficulty of observation.

"French coast, skipper, Dieppe—new course for Eindhoven 045°. Start turning now." Tony's voice came through busily.

With startling contrast the bomber broke free from the cloud into blinding sunlight and azure skies, and a confusion of voices started crowding the intercom simultaneously.

"God Almighty! About bloody time too!" Reg burst out in aggrieved relief. "Hallo gunners—can you pick up any of the others?"

I leaned forward, slid up the clear-vision panel and swung the turret steadily through its 360° field of fire. Unexpectedly a gaggle of aircraft emerged in rapid succession out of the cloud layer beneath the starboard bow.

I flicked on the intercom quickly. "Hallo skipper, look down starboard about a mile away—do you see them?"

"O.K., mid-upper. Thank you, I've got them."

We banked away to starboard, side-slipping down swiftly, and closed up into position. I looked astern and saw the rest of the force forming into battle order, and we started climbing in formation to 15,000 feet for Eindhoven.

There was a tell-tale rasping hiss as somebody's intercom phone came alive, and after a few moments Reg rapped out: "Microphone, please, somebody"—then a slight pause, followed by a click as the line went dead. I grinned, and reflected that someone could be guaranteed to knock their mike switch on accidentally at least twice every trip.

The formation started to wheel to the south, and Tony called Reg up to tell him we should be turning on to 135° for Düren, altitude 20,000 feet. I began to wonder whether perhaps after all I'd built up the dangers of this raid too imaginatively—the bright sunlight was play-

ing on the planes' propellers, forming sparkling circles of silver, and the gun barrels glinted watchfully with the constant rotating of the turrets. I felt lifted with a buoyancy of spirit and pride of purpose.

The cloud had broken into overlapping clumsy islands, and down through the gaps the snow-covered fields and houses of the third Reich moved steadily beneath us. Still no sign of any opposition—not so much as one isolated burst of flak. My feeling of confidence began to wane, turning to puzzlement and uncertainty. Was it just possible that the enemy had relaxed his customary vigilance, feeling sufficiently protected by the weather? There was something wrong about the whole atmosphere—a still, unnatural calm.

The formation thundered relentlessly on, and the intercom crackled into life once again with Tony's non-committal information. "Hallo skipper, we should be making a 60° turn for the target in thirty seconds from now."

"Thank you, navigator." Reg's crisp tones came back evenly and the line fell silent.

We slid slowly into a banking turn to port and levelled up for the bombing run to the target, the sun up ahead flooding the formation with brilliance.

The first flak shells exploded into the formation in a thunderclap of shattering white-hot steel, and the Lancaster immediately astern disintegrated into a





*... one thought in my mind—to get out of this flaming death-trap*

cascade of writhing flame and metal. The bomber in its wake reared up and plunged on through the debris of wreckage and hanging black clouds from the flak bursts.

I swung the turret round in a frenzy of alarm as a further barrage of fire smashed into the aircraft to port with terrifying effect. Slowly, almost lazily, bombers started falling out of formation pouring smoke and flame, and I sat rigid with fear, clutching the turret control column.

We suddenly slewed violently to starboard as another murderous burst of shells engulfed the port wing and erupted into a sea of flame. I sat stunned with the horror of events, and all around me there were stricken Lancasters wallowing in a curtain of smoke and flak.

The enemy fighters hit us in a head-on attack out of the sun.

Me 109s and FW 190s blasted through the formation, cannon and machine-guns blazing savagely; and I jerked dazedly into action, desperately trying to bring the guns to bear on an enemy aircraft. A 109 came into the reflector sight, and I opened fire in a

wild continuous burst until it broke away and was lost in the obscuring black smoke of combat. Two FWs hurtled in from the starboard bow, and my gunsight was blown to pieces as a stream of machine-gun fire shattered the 'Perspex' inches from my face. There was a violent upward jerk, and I suddenly remembered the bombs—that must have been them leaving. Intercom must be cut! I started pressing the emergency call lights button frantically, but nobody answered.

The entire port wing was a roaring mass of flames now, and we were lurching and floundering helplessly, a thousand feet below the remnants of the formation.

Hell! I must get out of the turret! The intercom was a charred mess of burnt-out wiring as I dropped down into the fuselage and stood trembling with panic, my eyes and throat smarting painfully with the smoke pouring through the aircraft.

Where was everybody? Oh God! I couldn't think clearly—all I knew was that I must get out. My parachute slipped from my shaking hands as I tried to clip it into position on my harness, and I was thrown

on to my face as I bent to snatch it from the floor. I staggered to my feet as a frantic figure crashed through the bulkhead door of the wireless operator's cabin.

Pip! What was happening up front? I stared at him stupidly. His lips were moving soundlessly as he reeled towards me—then the force of his words hit me. "Get out!" he screamed. "Out, out—they've all gone!" All gone? . . . All gone? My whole body was jerking uncontrollably. I stood uncomprehending as he clutched his way past me towards the exit door amidships.

I stumbled blindly after him, clawing my way through broken spars and jagged, shell-torn wreckage, the parachute secured by only one lock on my harness, with one thought in my mind now—to get out of this flaming death-trap rolling crazily out of control more than 18,000 feet above the earth.

Pip stood tearing and pulling frantically at the door when I reached it, panting with effort.

"Open it—for — sake get it open—open—open!" I pushed him to one side in a surge of panic, throwing myself wildly at the solid, unyielding metal. I felt Pip's weight at my shoulder as he hurled himself frenziedly against the jammed lock. "Can't get it—can't open . . . Oh Jesus! He was mumbling over and over in a dull monotone.

I leaned against the door sobbing with frustration—my eyes searching wildly round the wreckage in the fuselage. The escape axe! I came off the door, fell across some wiring, and wrenched the axe from its wall clips.

Pip was still battering against the door as I lurched back across the flapping wires with the axe, and I shouted in his ear: "The axe! I've got the axe!"

The first blow smashed the lock, and in a rushing roar from the slipstream the door whirled crazily away, leaving the gaping hole of the escape hatch.

We were down to less than 5000 feet, and suddenly the aircraft's nose started lifting with incredible force as we started to loop over. We both sank to the floor, the terrible centrifugal pressure pinning us down relentlessly, as though held by a giant arm. I lay where I had fallen, face down—utterly spent. I felt drained of emotion—beaten with the utter hopelessness of our position. The escape hatch was less than six feet away from my left hand, and it might as well have been sixty. Through the hatch the sky and snow-covered earth were turning in an insane kaleidoscope, and we lay defeated in shocked mental and physical exhaustion.

So this was how it was to end. Strange—I'd never thought I would die like this. No noise of battle now—only an incredible quiet in a vast, rushing void, broken only by the crackle of fire moving inexorably through the dying aircraft. I felt curiously detached from my physical self, and for a fragment of time I saw myself as though through other eyes, lying already in the attitude of death, and it seemed strangely unimportant.

I was pulled back into stark reality by the touch of Pip's hand falling to my shoulder in a quiet, resigned gesture of farewell. "No good, Roy. We're finished! Doesn't matter . . . Goodbye, old chap." His hand lay still upon me and he spoke with terrible finality.

Goodbye? . . . Goodbye? What—what? . . . I heard myself grunting in mounting animal terror. I threw off his hand in horror, struggling against the crushing pressure to a half-crouching position, choking meaningless obscenities at the mass of shattered metal bent vindictively on our destruction—and then I was suddenly, finally finished and nothing more was left. My head fell forward tiredly on to my gloved hands and I waited for the end.

The revolving world of white outside had steadied down into a familiar pattern of buildings, railway tracks, locomotives—all magnifying with bewildering speed—rushing towards us with overpowering certainty—Lilliputian figures scurrying in lunatic confusion—and the whole panorama exploded into an engulfing whirlpool of darkness. . . .

A distant babble of voices crowded harshly into my consciousness and my eyes opened to the swirling whiteness of falling snow. I turned my head painfully to one side and stared dully at a blur of hate-contorted faces surging angrily towards me, threatening hands gesticulating across guttural throats. Pip lay close to my side, his face a crimson mask, and as I tried to raise myself up a wave of unbelievable pain swept through my body, and I fell back on to the snow in an anguished whimpering.

The crowd were shuffling back, and someone was unfastening my clothes with deft, reassuring hands. There was the slight prick of a hypodermic needle, and for a fleeting passage of time I could still feel the cold, gentle caress of snow falling on my face. The menacing nightmare figures slowly began to fade into an anonymous mass, and I was floating languidly, timelessly, on a soft downy pillow of oblivion.

And then, quite suddenly, I could no longer feel anything at all.





*"Spartans"*

*Photo by A. W. Caunt (Billingham Division)*